

BELLCOMM INC.

1100 Seventeenth Street, N.W. Washington, D. C. 20036

SUBJECT: Trip Report - Nuclear Powered
Orbital Workshop, MSFC, Aug. 1, 1968
Case 730

DATE: August 14, 1968

FROM: C. P. Witze

MEMORANDUM FOR FILE

The author attended the initial meeting of a working group formed to evaluate the Nuclear Powered Orbital Workshop Study. The study is a joint effort of MSFC, AEC and Atomics International (AI). The purpose of the study is to establish the design and operational constraints imposed on a manned orbital workshop due to the presence of a nuclear reactor electrical power system.

The reference spacecraft configuration will be based on the on-going Intermediate Orbital Workshop program. The launch date will be late 1973 with a two-year minimum lifetime. The reactor system will be launched with the station if the INT-21 launch vehicle is used. Titan and Saturn IB vehicles will be considered if the power system is launched separately. The baseline mission will be 3-6 men at 270nm and 50° inclination. Reactor disposal will be accomplished by either boost to 450 nm storage orbit or by de-boost into the ocean.

The reference reactor system design will be the SNAP-8/thermoelectric system (25 KWe) currently being developed by AI and Westinghouse for the AEC. The manned shield will be sized to 25 rem/year. Preliminary estimates indicate that the entire power system (reactor, T/E converter, radiator, shield, etc.) will weigh about 25,000 lbs. The T/E converter will be composed of four 6.3 KWe modules in order to supply some degree of redundancy. MSFC feels that, if this much electrical power can be made available, there is little doubt that it can be used.

C. P. Witze

C. P. Witze

1014-CPW-gml

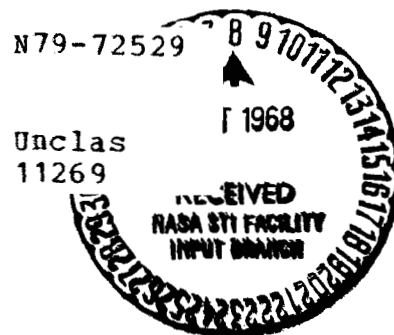
(NASA-CR-97027) TRIP REPORT - NUCLEAR
POWERED ORBITAL WORKSHOP, MSFC, AUGUST 1,
1968 (Bellcomm, Inc.) 2 p

FACILITY # _____ (PAGES)
CR-97027
(NASA CR OR TMX OR AD NUMBER)

(CODE)

(CATEGORY)

00/20

Unclas
11269

BELLCOMM. INC.

Subject: Trip Report - Nuclear Powered
Orbital Workshop, MSFC, Aug. 1, 1968
Case 730

From: C. P. Witze

Distribution List

NASA Headquarters

Messrs. W. O. Armstrong/MTX
F. P. Dixon/MTY
E. W. Hall/MTG
T. A. Keegan/MA-2
D. R. Lord/MTD
A. D. Schnyer/MTV
J. W. Wild/MTE

Ames Research Center

Mr. L. Roberts/MA-2

Bellcomm, Inc.

Messrs. F. G. Allen
G. M. Anderson
A. P. Boysen, Jr.
D. A. Chisholm
C. L. Davis
D. A. DeGraaf
J. P. Downs
D. R. Hagner
P. L. Havenstein
N. W. Hinnners
B. T. Howard
D. B. James
J. Kranton
K. E. Martersteck
R. K. McFarland
J. Z. Menard
G. T. Orrok
T. L. Powers
I. M. Ross
F. N. Schmidt
J. W. Timko
J. M. Tschirgi
J. E. Volonte
R. L. Wagner
J. E. Waldo

All members, Division 101
Central Files
Department 1023
Library